

CLAIMS

What is claimed is:

1. An apparatus for orienting a part, the part having been detached from a web having a plurality of parts, the apparatus comprising:

3 a duct including an interior sloped side, the interior sloped side creating a first opening for receiving the part and a second opening;

wherein the part exits the second opening in a substantially vertical orientation.

2. The apparatus of claim 1, further comprising:

a machine for detaching the part from the web;

wherein the duct is coupled to the machine so that the part is received by the first opening of the duct after being detached from the web.

3. The apparatus of claim 2, wherein the machine includes a punch and a die, the die including an opening through which the part passes before it is received by the duct.

4. The apparatus of claim 1, wherein the interior sloped side is made of one of the group consisting of polymeric material and polished metal.

5. The apparatus of claim 1, wherein the interior sloped side is planar.

1 6. The apparatus of claim 1, wherein the duct includes a plurality of interior sloped sides.

1 7. The apparatus of claim 1, wherein the part has a curled shape, the apparatus further
2 comprising:

3 a container for holding the part, the container including an open end and a
4 contoured end;

5 wherein the open end of the container is coupled to the duct to receive the part
6 from the second opening of the duct; and

7 wherein the contoured end of the container substantially conforms to the curled
8 shape of the part.

1 8. The apparatus of claim 7, wherein the container accommodates a plurality of parts
2 with a curled shape stacked upon each other.

1 9. The apparatus of claim 7, wherein the container is coupled to the duct using a u-
2 shaped channel.

1 10. The apparatus of claim 1, wherein the second opening is smaller than the first
2 opening.

1 11. A method of orienting a part, the part having been detached from a web having a
2 plurality of parts, the method comprising the steps of:

3 passing the part through a duct, the duct having an interior sloped side; and
4 orienting the part to a substantially vertical orientation using the interior sloped
5 side.

12. The method of claim 11, further comprising using an air flow in the passing step.

13. The method of claim 11, wherein the part has a curled shape, further comprising the
2 step of:

3 passing the part from the duct into a container having an open end and a contoured
4 end;

5 wherein the contoured end is substantially the same shape as the curled shape of
6 the part; and

7 wherein the part settles in the container such that the curled shape of the part
8 substantially conforms to the contoured end.

1 14. The method of claim 13, further comprising the step of:

2 repeating the steps of passing and the step of orienting for another part, the
3 another part having a curled shape, wherein the another part settles in the container such

4 that the curled shape of the another part substantially conforms to the curled shape of the
5 part.

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1 15. An apparatus for stacking a plurality of flexible circuits, the apparatus comprising:
2 a container for stacking the flexible circuits, the container including an open end
3 and a contoured end;
4 wherein a relationship between a center of mass of a flexible circuit and a contact
5 point of the flexible circuit with one of the contoured end and a previous flexible circuit
6 creates a moment causing the flexible circuit to stack upon one of the contoured end and
7 the previous flexible circuit.

1 16. The apparatus of claim 15, further comprising:
2 a duct for orienting the flexible circuits, the duct including an interior sloped side,
3 the interior sloped side creating a first opening for receiving a flexible circuit and a
4 second opening;
5 wherein the interior sloped side orients the flexible circuit in a substantially
6 vertical orientation; and
7 wherein the open end of the container is coupled to the duct to receive the flexible
8 circuit from the duct.

1 17. The apparatus of claim 16, wherein the container is coupled to the second end of the
2 duct using a u-shaped channel.

1 18. The apparatus of claim 15, further comprising:
2 a machine for detaching the flexible circuits from a web;
3 wherein the container is coupled to the machine so that the flexible circuits are
4 received by the container after being detached from the web.

1 19. The apparatus of claim 18, wherein the machine includes a punch and a die, the die
2 including an opening through which the flexible circuits pass before being received by the
3 container.

1 20. The apparatus of claim 15, wherein the contoured end is substantially the same shape
2 as a curled shape of the flexible circuit.